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There are a number of significant interference problems with current proposals for Broadband over Power Line. In addition, current proposals for these systems are at risk of hackers breaking into them. The commission should also note that the data rates offered for Access BPL systems are much inferior to data rates in new DSL (Digital Subscriber Line) technology currently being tested by standards bodies.

1. Low VHF television signals are significantly affected by existing devices that meet part 15 class B emission limits. In the Chicago area CBS affiliate WBBM-TV has an allocation in TV channel 2 for analog TV and channel 3 for HDTV. The analog signal is significantly affected by part 15 class B devices. Significant deterioration of picture and sound quality occur due to devices in the same house as the over-the-air TV receiver. Unfortunately, the HDTV picture is even more significantly affected. The HDTV picture from WBBM completely turns off when the part 15 device is operated approximately 15 feet from the TV antenna.

Because the Access BPL System signals will radiate from every power line wire in the building, these signals can be expected to have similar affects on the HDTV reception. Unfortunately, these emissions will occur at every house in any area served by Access BPL Systems.

Access BPL Systems should be required to have a means of preventing these signals from going down the power line of non-subscribers. Otherwise reception of HDTV signals is going to be severely degraded.

Additionally, Access BPL Systems should not be allowed to use frequencies that are assigned to Low VHF TV stations inside the station's coverage area.

2. The 30-50 MHz Low VHF range is used by a large number of rural fire departments. These departments often use these frequencies to alert volunteer firemen using voice paging techniques. The firemen also use these same voice paging devices to receive commands from the fire commanders while they are inside a burning building. These operations could be severely affected by Access BPL Systems.

When firemen first arrive at a burning home, they begin by removing the Watthour meter from the outside of the building. This turns off power to the building, preventing any electrocution hazard to the firemen. This will not, however, prevent radiation from the power line that comes to the building by the Access BPL System. By removing the terminating load from the power line, radiation from the Access BPL System will increase. This radiation will cause a significant safety problem for the firemen while they are in the building. If the firemen are not able to hear commands via their radio receiver, they may not leave the building when commanded to do so. This could cause death or injury to firemen.

Because of this risk to firemen and other land mobile users in the 30-50 MHz range, Access BPL Systems should not be allowed to use frequencies from 30-50 MHz.

3. Access BPL Systems also pose an interference risk to services at frequencies higher than those used by the Access BPL subcarriers. Any poor electrical connections in the

power system wiring will cause rectification of the Access BPL signals and it will cause harmonics of those signals to be developed at that poor connection. These harmonics will cause significant interference to services at frequencies up to ten times the highest frequency used by the Access BPL System.

4. Interference from Access BPL Systems will raise the noise floor throughout the frequency band being used for the system. This will reduce the ability of receivers of other services to hear signals. Users of some services will then increase their transmitter power to insure that they are heard. This side effect could cause interference to consumer devices that are near these transmitters. The commission should take steps to limit this increase in the noise floor by requiring the Access BPL system to use the minimum power necessary to be received. Techniques similar to those used in Cellular Phone systems should be used to insure that the power used to transmit to or from an access point is the minimum necessary.

5. To reduce interference from Access BPL Systems, the power companies offering these services should be required to block these signals from going down the power line of any customer who is not a subscriber to the service. This could be done simply with small inductors added to each hot side and the neutral side of the power line. This would significantly reduce the interference potential, since customers who don't have the service would not have these signals radiating from their power line.

If these signals are not blocked from customers who do not use the service, sellers of the service will find that hackers will find ways to steal service from them. Blocking the signal from going to homes that do not pay for the service will prevent hacking into the system.

6. Data rates proposed for these Access BPL Systems seems very high, however these systems are shared bandwidth. With access points being up to 4000 feet from the transmitter end, these systems could be shared by more than 60 customers on a linear power line. This results in data rates of less than 1 megabit per second for each customer. These rates are insufficient to allow such services as video distribution. These rates are much inferior to rates available on DSL systems currently being tested by the industry. They are also inferior to rates available on 2.4 GHz and 5 GHz wireless systems.

7. The frequencies used by Access BPL System will also cover the spectrum from 1.7 to 30 MHz. These frequencies are used by many services including many that are part of our Homeland Security efforts. Services such as Amateur Radio, Military Affiliate Radio System (MARS), and ESDA will be significantly impacted by radiation leaking from Access BPL Systems. These services typically operate from residential areas where there are a large number of power lines. These lines will leak radiation over a wide bandwidth over their entire length. This will make it very difficult for the users in these services from hearing other stations.

Access BPL Systems should not be allowed to use frequencies that are used by the Military, MARS, Amateur Radio, or ESDA.

8. Access BPL Systems differ greatly from other part 15. Other part 15 devices, both incidental and intentional radiators, radiate on a small number of discrete frequencies. Leakage from these systems can be avoided by simply changing the frequency of operation by a few KHz. Access BPL systems will have broadband leakage over the entire frequency range that they occupy. This makes it impossible for a licensed service user to change frequency. Access BPL will make all the frequencies unusable.

In this manner, Access BPL Systems are somewhat like the ultrawideband systems that the commission recently allowed above 3 GHz. Unlike ultrawideband devices, however, Access BPL systems will cover wide geographic areas and will be operating continuously. This will make vast sections of low frequency spectrum unusable permanently.

9. The commission asked how radiation from Access BPL System should be measure. Existing part 15 rules measure the individual spurious leakage carriers and limit their amplitude. Access BPL systems are designed to go up to the part 15 limits over a wide frequency band. Because of this , Access BPL systems should be limited to a maximum leakage power over the entire spectrum that they operate. The commission should determine what maximum leakage power will result in no detectable interference to licensed services over the entire spectrum used by the system.